

55th Combat Camera Company (Joshua Balog)

447th Air Expeditionary Group (Bryan Bouchard)

Member of Air Force  
explosive ordnance unit  
detonates explosives  
adjacent to Baghdad  
International Airport

MG Benjamin Freakley, USA, speaks to  
community elders at Forward Operating  
Base Lumbeyard, Afghanistan

# An Effects-Based Approach Refining How We Think about Joint Operations

By THE JOINT  
WARFIGHTING CENTER

100th Communications Squadron (Teresa M. Pumphrey)

SPECIAL FEATURE

*The expected future operational environment for military forces will be extremely dynamic. Expanding webs of social, economic, political, military, and information systems will afford opportunity for some regional powers to compete on a broader scale and emerge on the global landscape with considerable influence. While the nature of war will remain a violent clash of wills between states or armed groups pursuing advantageous political ends, the conduct of future warfare will include combinations of conventional and unconventional, kinetic and nonkinetic, and military and nonmilitary actions and operations, all of which add to the increasing complexity of the future security environment.*

—Capstone Concept for Joint Operations  
August 2005

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**A**n era of dynamic change, constrained resources, and rapid technological advancement continues to confront the Nation. This challenge and the factors quoted above dictate the need for a global perspective of the operational environment and military operations that are fully integrated with other instruments of national power. Such an approach requires innovative thinking and the ability to shape and manage change if America is to retain its worldwide leadership. As the lead agent for the Secretary of Defense for transformation of joint forces to meet these challenges, U.S. Joint Forces Command (USJFCOM) supports the joint community by pursuing a number of transformation-related objectives. One objective being discussed by the Secretary of Defense and other senior leaders in the Department of Defense (DOD) is creating capabilities within an overall framework of shared, knowledge-empowered, effects-based operations (EBO).<sup>1</sup>

Initial ideas about an effects-based approach did not originate at USJFCOM. Since 2001, the command has focused on testing and refining the concept while seeking the best ways to implement it. This evolution has included Service participation in joint experimentation, discussions with faculty at mid- and senior-level Service and joint schools, observation of effects-related constructs in action at deployed operational headquarters, and engagement with interagency and multinational partners.

This article provides background on an effects-based approach and explains the key elements, highlights their application in current joint operations, and discusses their incorporation in joint doctrine, training, and education. In the interest of providing the “bottom line up front,” an effects-based approach adds value to traditional joint processes in four areas:

- improved unified action among military, interagency, multinational, and nongovernmental organizations
- an expanded understanding of the operational environment beyond the traditional military battlespace focus
- an improved joint planning process that uses effects to clarify the desired endstate conditions in terms of the operational environment
- an enhanced joint assessment process that measures effects attainment rather than just task accomplishment.

## An Evolving Construct

By 2004, USJFCOM was actively engaged in advancing effects-based operations following a period of concept development and experimentation. Concurrently, many of the joint professional military education (JPME) and Service schools had begun to discuss EBO. The Air Force, on its own initiative, started to incorporate an effects-based approach in its Service doctrine.

Organizations in Afghanistan and Iraq also were using aspects of EBO. To help socialize the ideas and promote a common perspective, the Joint Warfighting Center produced a series of pamphlets on EBO and related constructs. The pamphlets led to a handbook with sufficient techniques and procedures to baseline an effects-based approach to joint operations.

As the handbook took form, the Joint Staff Joint Education and Doctrine Division (J-7) chief convened a forum in January 2005 to gain agreement on the way ahead for effects-related constructs in emerging joint doctrine. The gathering was held at USJFCOM, and all the unified commands and Services were invited. It was a watershed event because stakeholders could discuss their concerns. The outcome was a consensus on how joint doctrine would incorporate effects-related constructs. The consensus was that EBO would be described as an “effects-based approach” and that associated emerging joint doctrine would:

- incorporate a systems approach to understanding the operational environment
- expand *combat assessment* to provide for measuring progress toward desired effects and operational and strategic objectives
- describe the relationship of effects-based ideas to elements of operational design
- define and/or revise terms key to understanding an effects-based approach to joint operations
- describe how effects are incorporated in the commander’s intent.<sup>2</sup>

The joint and Service representatives explained what their cultures could accept regarding effects-based ideas in joint doctrine. The approach continued to evolve following the forum. The USJFCOM Joint Concept Development and Experimentation Directorate (J-9) continued to experiment with an

**F-16C drops laser-guided missiles during training flight**

*an effects-based approach measures effects attainment rather than just task*

effects-related staff process to be employed in a multinational joint task force headquarters. The command’s Standing Joint Force Headquarters was deployed and teaching effects-based techniques and procedures worldwide, linked closely with the J-7 integration of an effects-based approach to operations in joint training. Linking these efforts, a USJFCOM team was writing a handbook to serve as a bridge for the migration of effects-related ideas into joint doctrine. And Joint Publication (JP) 3-0, *Joint Operations*, and JP 5-0, *Joint Operation Planning*, were in revision and were intended to incorporate constructs based on the consensus achieved at the forum.

## The Commander’s Handbook

The aim of the *Commander’s Handbook for an Effects-based Approach to Joint Operations* was to provide the joint community with a common baseline that would fill the void between earlier transformational concepts, varied field practices, and emerging joint doctrine. This initiative considered comments from Services, combatant commands, and other organizations to bring an understanding of various perspectives. The handbook uses the style and language of joint doctrine while reflecting the “best practices” that USJFCOM had observed during interaction with joint and Service organizations involved in actual operations. USJFCOM published the handbook in February 2006.<sup>3</sup>

Although effects-based ideas continue to be refined, the core aspects of the approach have become commonly recognized within the joint community with the publication of the handbook, the community’s involvement in the revisions of JP 3-0 and JP 5-0, and related joint training and education. It is focused at the theater-strategic and operational levels—on combatant command and joint task force (JTF) headquarters—but can be applied at higher and lower levels as well. Its techniques and procedures complement rather than replace current joint processes. An effects-based approach is used in the joint intelligence preparation of the operational environment (JIPOE), joint operation planning, and joint assessment processes.

Foremost, an effects-based approach is a joint command and staff thinking process

designed to improve unified action. Its object is to harmonize and synchronize military actions with those of other instruments of national power—diplomatic, informational, and economic—to achieve unity of effort in joint operation planning and execution. This harmonization is accomplished by greater collaboration in managing ways, means, and ends in an operation. Beginning with national objectives, joint force commanders (JFCs) work with interagency stakeholders to clarify the objectives, roles, and responsibilities of each agency. These objectives are translated into effects—the system behaviors and conditions needed to achieve the objectives. Tasks are assigned and stakeholder actions are integrated with the goal of attaining specific effects on various systems—political, military, economic, social, infrastructure, and informational (PMESII)—within the operational environment. Unified action at the tactical level is enabled by effects-based techniques and procedures embedded in the joint intelligence, operation planning, and assessment processes.

### Effects and Joint Intelligence

A crucial application of an effects-based approach resides within the joint intelligence community, which is most likely to be held accountable for creating and maintaining the systems view of the operational environment. Joint intelligence preparation of the battlespace (JIPB) will expand to JIPOE to more thoroughly capture PMESII aspects of the operational environment: friendly and unaligned, as well as adversary systems (figure 1). This expansion will necessarily involve more input from various agencies, especially from the national intelligence community.

JIPOE uses a system-of-systems analysis (SOSA) that portrays the key elements in the operational environment. These are shown as nodes in key systems along with their functional or behavioral relationships—links—to each other. An *effect* is the physical or behavioral state of a system that results from an action, set of actions, or another effect. From a systems perspective, a system referred to in the definition is represented by a designated set of nodes and links in the operational environment at any point in time. Therefore, the joint force intelligence directorate understanding of the JFC's desired effects will help focus the SOSA-enabled JIPOE process. SOSA portrays not only the relationships within systems, but also between systems. Among other

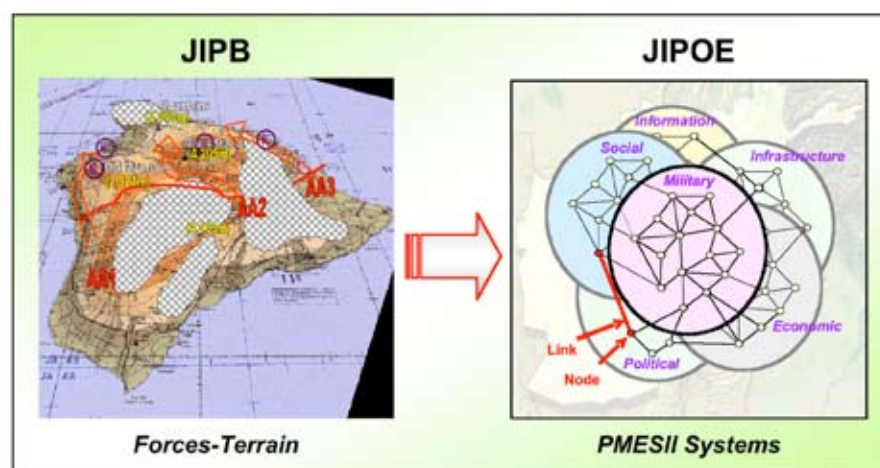


Figure 1. Expanding Battlespace to Operational Environment

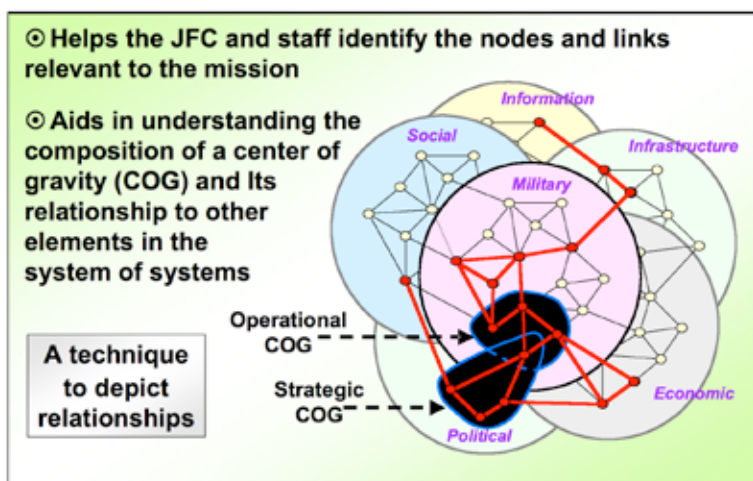


Figure 2. System-of-Systems Analysis and Centers of Gravity

purposes, it offers a technique for understanding the enemy's centers of gravity and a broader perspective of the operational environment to augment the JFC's planning and assessment processes (figure 2). Like JIPB, time available and access to detailed information determine how completely the JIPOE is developed.

Planning for the employment of military forces occurs at every echelon of command and across the range of military operations. An effects-based approach to planning complements the traditional planning process. It seeks to fully integrate military actions with those of the other instruments of national power while clearly coupling tasks to objectives within an assessment framework that supports JFC guidance. Theater-strategic and operational planning translates national and theater-strategic objectives into the JFC's strategy and ultimately into tactical action by integrating ends, ways, and means between the echelons of command.

Joint operation planning blends two complementary processes. The first is the joint operation planning process (JOPP) (figure 3), an orderly, analytical planning process consisting of logical steps to analyze a mission; develop, analyze, and compare alternative courses of action; select the best course of action (COA); and produce a plan or order. The second process is operational design, the use of various design elements in the conception and construction of the framework that underpins a joint operation plan and its subsequent execution. The JFC and staff use effects and other operational design elements (endstate, center of gravity, etc.) throughout JOPP.

JOPP begins with the JFC's guidance, continues through mission analysis and COA determination, and produces directives to subordinate commanders. As part of his guidance, the commander may discuss the operational environment in systemic terms



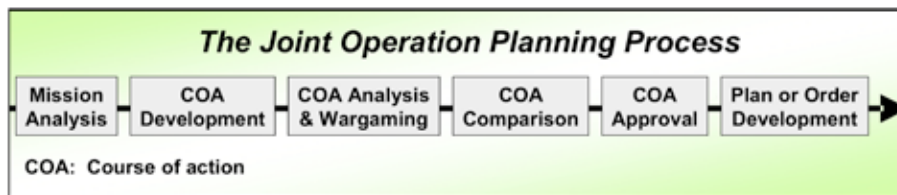


Figure 3. JOPP

and provide an initial set of effects to guide the planning process. During this process, effects help planners understand and measure conditions for success. The use of effects is reflected in the steps of JOPP as a way to clarify the relationship between objectives and tasks. Combined with a systems perspective, planners can use an understanding of desired and undesired effects to promote unified action with multinational and other agency partners.

Effects are derived from understanding the JIPOE and the JFC's objectives. They help clarify the relationship between objectives and tasks by describing the conditions (in terms of system behavior) that need to be established or avoided within the operational environment to achieve the desired endstate. This use of effects and a systems perspective can facilitate the joint force's collaboration with ambassadors and agencies within the operational area early in the planning process.

Throughout the remaining JOPP steps, the JFC and staff further refine their understanding of desired and undesired effects. The accompanying text box contains an example of an objective, two supporting effects, and a task that might be given to a joint force component to attain the second effect. Friendly COAs are developed to attain the effects. These COAs are analyzed, compared, and presented to the JFC for approval together with the staff's recommendation.

Once the JFC approves a COA, the operation plan or order is developed and published. These plans or orders provide actionable direction by aligning objectives, effects, and tasks. Effects can be reflected in various ways, including the commander's intent, the concept of operations, and annexes.

Planners use elements of operational design throughout the planning process. As a new component of operational design, the effects element impacts other parts. As mentioned earlier, effects are tied to endstates and objectives. Desired effects relate to understanding centers of gravity in systems terms. Effects can be used in conjunction with lines of operations—a technique to depict a logical

arrangement of tasks, objectives, and effects as the operation progresses. The JFC and planners also consider effects as they think about decisive points, direct versus indirect approach, and other design elements. Joint Publication 5-0 discusses the relationship between JOPP and operational design.

### Assessment of Effects

*Assessment* measures the effectiveness of unified action. More specifically, it helps the JFC and stakeholders determine progress toward accomplishing a task, creating an effect, or achieving an objective. It helps identify opportunities and any need for course corrections. This process involves continuous assessment of joint force performance throughout planning and execution.

JFCs and their staffs, together with other stakeholders, determine relevant assessment actions and measures during planning (figure 4). They consider assessment measures as early as mission analysis and include those and related guidance in commander and staff estimates. They use assessment considerations to help guide operational design, because these considerations can affect the sequence of actions along lines of operations. They adjust operations and resources

as required, determine when to execute branches and sequels, and make other critical decisions to ensure that current and future operations remain aligned with missions and desired endstates. Normally, joint force planners are responsible for developing appropriate measures to determine progress toward attaining effects. Current "best practices" suggest that planners and an effects assessment cell, supported by the battle staff and other stakeholders, are keys to an effective assessment process. Various elements of the JFC staff use assessment results to adjust both current operations and future planning.

The JFC and staff use measures of performance (MOPs) and effectiveness (MOEs) to determine progress toward accomplishing tasks, creating effects, and achieving objectives. More specifically, MOEs are associated with creating effects and MOPs with task accomplishment. Well-devised measures can help commanders and staffs understand the causal relationship between specific tasks and desired effects. During execution, MOEs and MOPs will drive joint force adaptation. These measures will answer important questions: Are we doing the right things? (effects assessment); Are we doing things right? (task accomplishment); Are we succeeding? (achieving operational and strategic objectives).

### Current Operations

Perhaps the most compelling indicator of an idea's potential value-added is the willingness of people to apply it. Organizations engaged in operations tend to quickly reject ideas that don't work or that complicate

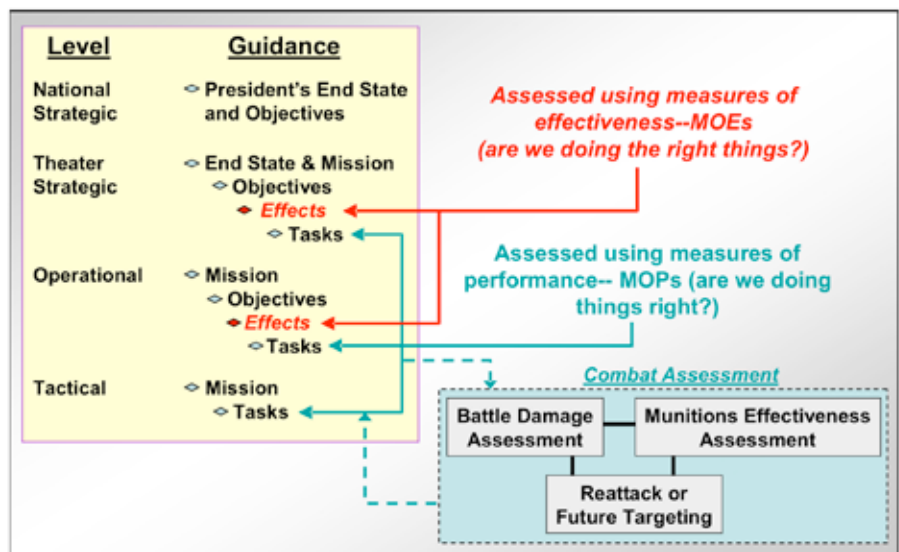


Figure 4. Levels of Assessment and Measures

proven techniques and procedures. Following are three examples of organizations using effects-related constructs in current joint and combined operations.

Both Combined Forces Command-Afghanistan (CFC-A) and its subordinate, Combined Joint Task Force-76 (CJTF-76), use effects in their internal planning and their interaction with the U.S. Ambassador and country team.

Although focused on a single country, a number of diverse provinces increase the complexity of operations. CFC-A's development of effects statements has facilitated collaboration with the U.S. Embassy. Likewise, CJTF-76 uses effects in its collaboration with the British-led International Security Assistance Force (ISAF). Although ISAF uses its own variation of effects, the differences compared to CJTF-76's usage are small, and effects essentially facilitate a common language between the two organizations. CJTF-76 also uses lines of operations not only for military tasks and objectives, but also for those related to other systems, such as an objective associated with extending the reach of the central government (the political system in Afghanistan). The use of effects and a systems perspective of the operational environment promote unity of effort among the military, other agencies, and international forces.

U.S. Central Command's Combined Joint Task Force-Horn of Africa (CJTF-HOA), based at Camp Lemonnier in Djibouti, faces a situation different from that in Afghanistan. Its operational area encompasses a number of countries and requires interaction with seven ambassadors and country teams. Much of the task force's operational focus is on humanitarian assistance. CJTF-HOA interacts with U.S. Central Command headquarters using objectives and effects, and collaborates with the Embassies the same way in the context of their mission performance plans. While success varies among the Embassies, in general the use of effects has facilitated a more inclusive and common view between the military, the

*although effects-based ideas continue to be refined, the core aspects have become commonly recognized within the joint community*



Embassies, and other agencies regarding the various organizations' roles in achieving common objectives.

In Operation Iraqi Freedom, both Multinational Force-Iraq and Multinational Corps-Iraq (MNC-I) are using a systems perspective, effects in the planning process, and assessment of effects in much the same way as CFC-A and CJTF-76. MNC-I incorporated aspects of an effects-based approach as part of its joint operation planning and execution procedures. Although its efforts preceded the publication of the *Commander's Handbook for an Effects-based Approach to Joint Operations*, MNC-I established sound techniques for effects planning and assessment. Moreover, techniques such as those practiced by MNC-I heavily influenced the development of the handbook.

### Other Examples

Additional organizations in the Department of Defense, industry, academia, and the multinational arena are using effects-related constructs.

- The U.S. Army is sponsoring a Theater Effects-based Operations (TEBO) Advanced Concept Technology Demonstration for U.S. Forces Command Korea to examine specific tools and technology associated with effects-based planning. TEBO's integration of emerging analysis and decision-aiding technologies helps the development of a comprehensive knowledge base of red, blue, and green players within the operational

environment, enhances effects-based planning within a joint/combined context, and assesses progress toward the desired end-state by measuring attainment of direct and indirect effects to facilitate adaptation of the plan. United Nations Command/Combined Forces Korea/United States Forces Korea has applied effects-based ideas across all its military functions. This was evidenced by Combined Forces Command-Korea's extensive use of TEBO during Exercise Reception, Staging, Onward movement, and Integration '06. Also, in an effort to further combined operations in the Korean theater, the *Commander's Handbook for an Effects-based Approach to Joint Operations* has been translated to Hangul.

- U.S. Special Operations Command's operation plan for the global war on terrorism incorporates effects.

- The U.S. Army War College incorporates effects-related constructs in its Joint Force Land Component Commander's Course, a supporting handbook, and its Distance Education Course.

- U.S. Pacific Command's Joint Intelligence Course includes system-of-systems analysis in conjunction with its JIPB instruction.

- The Military Committee of the North Atlantic Treaty Organization (NATO) has adopted an effects-based approach to operations, defining it as "the coherent and comprehensive application of the various instruments of the Alliance, combined with the practical cooperation along with involved non-NATO actors, to create effects necessary to achieve





*at its core, an effects-based approach will remain primarily a refinement of how we think about joint operations*

planned objectives and ultimately the NATO endstate.<sup>24</sup>

■ The latest draft of Air Force Doctrine Document 2, *Operations and Organization*, incorporates an effects-based approach to military operations.<sup>5</sup>

At its core, an effects-based approach will remain primarily a refinement of how we think about joint operations. The joint community now has an authoritative baseline for this thinking in JPs 3-0 and 5-0. As effects-related constructs mature, members of the joint community will continue collaboration to refine the enabling doctrine, organizations, training, education, and technologies. USJF-COM will help sustain that baseline consistent with its transformation charter and role as the joint force trainer.

The journey from concept development and experimentation to joint community acceptance and application of effects-related constructs is typical of other transformation initiatives. The debate over the past three years has been productive. In one way, it has challenged USJFCOM and other proponents to continue to refine the constructs, simplify explanation of ideas, demonstrate the added value, and recycle ideas that are not yet ready for prime time. But the debate has also challenged the entire joint community to revisit established practices and consider how the community might improve itself rather than merely retaining what has worked in the past.



The commander of Task Force Spartan, part of Combined Joint Task Force 76, meets governor of Kunar Province, Afghanistan

The journey to fully implementing an effects-based approach will continue as joint doctrine publications under revision expand the overarching constructs described in Joint Publication 3-0; as joint training and education extend their reach to a larger audience; as we field better collaboration, visualization, modeling, and simulation tools; and as organizations in the field using an effects-based approach to operations (including those outside the Department of Defense) continue to validate new ideas in actual operations or identify better ways and means. In the context of transformation, U.S. Joint Forces Command will continue to support these processes with concept development, experimentation, capabilities development, and the professional dialog that is essential to finding better solutions. **JFQ**

## NOTES

<sup>1</sup> *Joint Transformation Roadmap*, U.S. Joint Forces Command, November 3, 2003, 12.

<sup>2</sup> The Joint Staff Memorandum, *The Effects-based Operations Mini-forum*, March 11, 2005.

<sup>3</sup> *Commander's Handbook for an Effects-Based Approach to Joint Operations*, Joint Warfighting Center, February 24, 2006, available at [http://www.dtic.mil/doctrine/jel/other\\_pubs/eb\\_handbook.pdf](http://www.dtic.mil/doctrine/jel/other_pubs/eb_handbook.pdf).

<sup>4</sup> North Atlantic Treaty Organization Military Committee Memorandum, "MC Position on an Effects Based Approach to Operations," June 6, 2006.

<sup>5</sup> Air Force Doctrine Document 2 (signature draft), *Operations and Organization*, May 25, 2006.